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satsen" by V. Lenander, 68–71; "Relativitetsprinciperna" by H. Fixén, 82–100; Mathematical questions and solutions, 118–128—No. 3, March, 1919: "Om seriesummeringar" by A. Meyer, 129–158; "Tillämpad matematik i skolans astronomikurs" by C. Lönnquist, 159–173; Mathematical questions and solutions, 181–192.

Transactions of the American Mathematical Society, volume 20, no. 2, April, 1919: "Memoir on the general theory of surfaces and rectilinear congruences" by G. M. Green, 79–153; "Modular concomitant scales, with a fundamental system of formal covariants, modulo 3, of the binary quadratic" by O. E. Glenn, 154–168; "Concerning a set of postulates for plane analysis situs" by R. L. Moore, 169–178; "On the limit functions of sequences of continuous functions converging relativity uniformly" by E. W. Chittenden, 179–184.

AMERICAN DOCTORAL DISSERTATIONS.

E. D. Grant, 1873– , *Motion of a flexible cable in a vertical plane.* Lancaster New Era, 1918. 4to. 28 pp. (Chicago, 1916).

J. E. McAtee, —— - 1918, *Modular invariants of a quadratic form for a prime power modulus.* [Reprinted from *American Journal of Mathematics,* volume 41, 1919]. Pp. 225–242. (Chicago, 1917).

UNDERGRADUATE MATHEMATICS CLUBS.

Edited by U. G. Mitchell, University of Kansas, Lawrence.

CLUB ACTIVITIES.

Denison Mathematics Club, Denison University, Granville, Ohio. [*1918,* 403-04.]

The Denison Mathematics Club had a somewhat unique scheme for their first annual banquet which was held on May 20, 1919. The Club walked in a group about a mile to a farmhouse where the meal was served. The twenty-five who attended were seated at two long tables. In the center of each table was a vase holding a large bouquet of various mathematical symbols, cut from white paper, each having a stem of slender wire. Cardioids cut from green paper and mounted in the same way supplied the leaves. The candle shades were encircled with simple equations cut in the cardboard of the inner shade which formed the support for the outer tissue shade, so that, when the candles were lighted, these equations stood out distinctly from their darker surroundings. Other symbols were suspended by means of fine thread from the lower edges of the shades.

Below is given a cut of the menu and program pages.

Since the reader can not have the opportunity of checking his interpretation of the menu by the food served the following key is given:

Course 1.

n_1: Escalloped potatoes.
n_2: Sliced veal loaf.
n_3: Rolls with butter.
n_4: Olives.
n_5: Coffee with cream and sugar.
(The two things selected in advance were the water and the the coffee berry.)

Course 2.

n_1: Fruit salad with dressing poured over the top and the whole "over" a lettuce leaf.

n_2: Wafers.

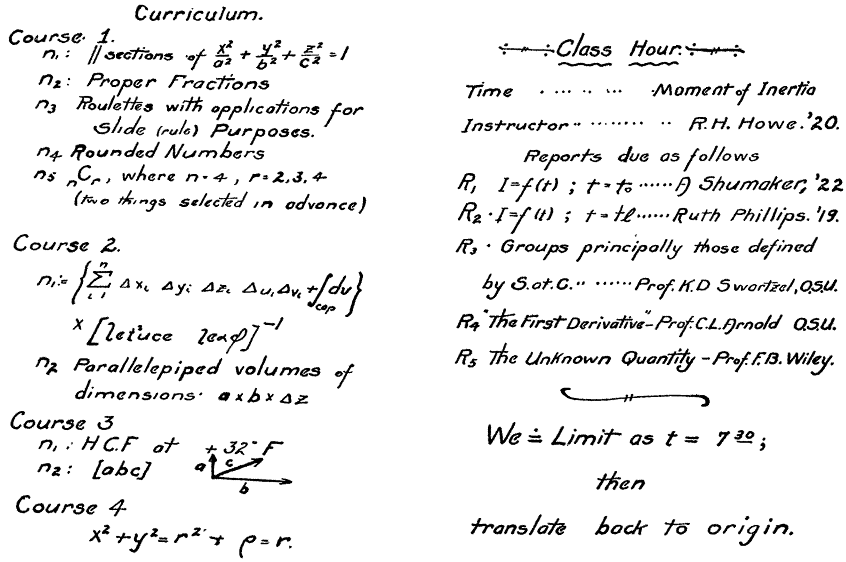
Course 3.

n_1: Ice cream.

n_2: Cakes as parallelopipeds.

Course 4.

Mints.



Curriculum.

Course 1.

n_1: $\|$ sections of $\frac{x^2}{a^2}+\frac{y^2}{b^2}+\frac{z^2}{c^2}=1$

n_2: Proper Fractions

n_3 Roulettes with applications for Slide (rule) Purposes.

n_4 Rounded Numbers

n_5 ${}_nC_r$, where $n=4$, $r=2,3,4$ (two things selected in advance)

Course 2.

n_1: $\left\{\sum_{i=1}^{n} \Delta x_i \, \Delta y_i \, \Delta z_i \; \Delta u_i \Delta v_i + \int_{cap} du\right\} \times [\text{lettuce leaf}]^{-1}$

n_2 Parallelepiped volumes of dimensions $a \times b \times \Delta z$

Course 3

n_1: H.C.F at $+32°$ F

n_2: $[abc]$

Course 4

$x^2+y^2=r^2 + \rho=r.$

Class Hour.

Time .... Moment of Inertia

Instructor .... R.H. Howe.'20.

Reports due as follows

R_1 $I=f(t)$; $t=t_0$ ...... A Shumaker, '22

R_2 $I=f(t)$; $t=t\ell$ ...... Ruth Phillips.'19.

R_3 Groups principally those defined by S.a.T.C." ...... Prof. K.D Swartzel, O.S.U.

R_4 "The First Derivative"–Prof. C.L. Arnold O.S.U.

R_5 The Unknown Quantity – Prof. F.B. Wiley.

We $\doteq$ Limit as $t = 7^{\underline{30}}$;

then

translate back to origin.

The guests of honor were Professors Karl D. Swartzel and Charles L. Arnold of Ohio State University. Professor Swartzel was a district examiner for the S. A. T. C. which fact suggested the topic for his toast. Professor Arnold is the main sponsor of the mathematics club at the Ohio State University.

The copy of the program given above was lettered by Mr. Richard H. Howe '20, president of the Club, who acted as toastmaster at the banquet.

The Mathematics Club of Northwestern University, Evanston, Ill. [*1918*, 132–134, 409.]

The officers of the Club for the year 1918–19 were: President, Franklin Mohr '18; vice-president, Frank Danielson '18; secretary, Helen Kelly '19; treasurer, Margaret Walker '19; faculty adviser, Mrs. Mayme Irvin Logsdon, instructor.

The following programs were given during the year.

September: "Some mathematics of artillery fire" by Theodore Doll Gr.; Informal talk on radio telegraphy, by Franklin Mohr '18.

October: "The game of nim" by Mrs. Mayme Irvin Logsdon, Instructor.

November: "Mercator's projection" by William H. Burger, Professor of Civil Engineering.
December: "Applications of algebra to arithmetic" by Margaret Walker '19.
January, 1919: "Finger-counting among the ancients" by Christine McMartin '19; "A short-hand system for advanced mathematical analysis" by Gladys Williams '19.
February: "Rotating fluid bodies" by Professor Elton J. Moulton.
March: "Integral right triangles" by Helen Kelly '19; "Fermat's last theorem" by Professor David R. Curtiss.
April: "Some indefinite locations at sea" by Leonard Janes '17.
May: "Communication with other planets by means of mathematics" by Eleanor Olmstead '19; "Problem of two bodies under the action of gravity" by William Janes '19.

Near the close of the year, a very pleasant social gathering was held at the home of Professor Curtiss. The reading of humorous sketches and participation in guessing contests furnished a good part of the entertainment.

THE PENTAGRAM, University of Texas, Austin, Texas. [*1918*, 273–274.]

The *University of Texas Bulletin* for May 10, 1919, gives the following resume of the Pentagram's activities during the year 1918–19:

"The Pentagram, the mathematics club at the University of Texas, is in its third year. It has proved itself to be profitable and stimulating to all its members. The influenza epidemic caused the suspension of the activities of the club the greater part of the first half of the present academic year. The work was resumed, however, about the middle of the winter term and the usual interest is being taken by both students and faculty. Under the leadership of Professor Albert A. Bennett, who organized the club in 1916, and who has returned from government service, the Pentagram looks forward to even greater success than it has had thus far.

"The officers of the Pentagram for the year are: President, Bert McDonald '19; vice-president, Georgie Savage '20; secretary-treasurer, Goldie P. Horton, instructor in pure mathematics; student member of the executive council, Warren Simonds '20; faculty member of the executive council, Professor Albert A. Bennett."

The meetings of the year were as follows:

November 15, 1918: "Derivativeless continuous functions" by Professor M. B. Porter.
January 9, 1919: "Homogeneous coördinates" by Professor J. W. Calhoun.
February 18: Social meeting.
March 5: "The graph of $y = f(x)$ for complex values" by Alice Ballard '21.
March 21: "Continued fractions" by Ernest Normand '18.
April 4: "A comparison of formulas used in computing parabolic arches" by Warren Simonds '20.

THE MATHEMATICS CLUB OF GOUCHER COLLEGE, Baltimore, Maryland.
[1918, 357–358.]

During the year 1918–19, Professor Florence P. Lewis, who has heretofore had charge of the Mathematics Club at Goucher, was Exchange Professor at Wellesley College and Misses Margaret Amig '19 and Marguerite Lehr '19 acted as program committee. Below is given a complete list of the programs given during the year.

December 16, 1918: "Report of the summer meetings of the Mathematical Association of America and the American Mathematical Society" by Professor Clara E. Smith, Exchange Professor from Wellesley College.
January 6, 1919: "Report of a meeting of the New England Association of Teachers of Mathematics" by Professor Florence P. Lewis.
January 20: "Map-making" by Marie Whelan '18.
February 3: "Empirical equations" by Professor Clara L. Bacon.
February 19: "Paper folding" by Margaret Amig '19.
March 5: "Persons and anecdotes in mathematics" by Ethel Carrol '20.
March 17: "History of the squaring of the circle" by Loretta Whelan '20; "Simple Hints on plotting graphs" by Varina Davis '20; "Magic squares" by Deldee Groff '20.
April 14: "Russian peasant method of counting" by Eleanor Norris '20; "The planimeter" by Louise Ellery '20 and Mary Brower '20.
May 5: "The golden mean" by Jean Burke '20; "Zeno's paradoxes" by Ethel Fox '19.
May 13: Picnic.

PROBLEMS AND SOLUTIONS.

EDITED BY B. F. FINKEL AND OTTO DUNKEL.

Send all communications about Problems to B. F. FINKEL, Springfield, Mo.

NOTE ON THE NUMBER OF SOLUTIONS OF LINEAR INDETERMINATE EQUATIONS.

BY D. N. LEHMER, University of California.

The solution of problem 2700 on page 215 of the May issue of the MONTHLY suggests the question as to whether a process may be found for obtaining, at least approximately, the number of solutions of an indeterminate equation in several variables. In the *Proceedings of the National Academy of Sciences*, April, 1919, I have given a method for getting, by a simple and direct process, the general form of the solution of any linear indeterminate equation in any number of variables. Such equations have been solved by Jacobi (*Werke*, Vol. 6, p. 355) but his process does not lead to the general form directly.

One finds for the equation $6w + 4x + y = 875$, which is the one treated in the Artemas Martin problem, the following general solution: